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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,191	02/17/2004	Hiroyuki Yamagishi	7217/71726	9923
530 7590 02/21/2007 LERNER, DAVID, LITTENBERG, KRUMHOLZ & MENTLIK 600 SOUTH AVENUE WEST WESTFIELD, NJ 07090			EXAMINER BAKER, STEPHEN M	
			ART UNIT 2133	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE			MAIL DATE	DELIVERY MODE
3 MONTHS			02/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/780,191

Applicant(s)

YAMAGISHI, HIROYUKI

Examiner

Stephen M. Baker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1, 3-9 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,996,764 to Yamada (hereafter "Yamada").

Yamada discloses arrangements for reproducing data that has been encoded by a turbo code encoder followed by an RLL code encoder and then carried by a PR channel as a DC-free code. Yamada's PR-Channel APP decoder is based on a combined RLL/PR code trellis, where the RLL code is a (1, 7) RLL code. Yamada shows an "acquiring means" in the form of a Reproduction Circuit 41, and the PR-Channel APP decoder 43 serves as a "means for decoding the acquired encoded data by using a trellis corresponding to a second finite state transition diagram that is a combination of the first finite state transition diagram and intersymbol interference," where the "first finite state transition diagram" corresponds to the RLL code trellis, and the "intersymbol interference" corresponds to the trellis of the PR channel. As the PR channel transfer function is itself DC-free, the "1"s and "0"s of Yamada's DC-free code are presumably carried in the form of DC-symmetric values (i.e. "NRZ" values, such as +1, -1. Consequently, the RLL/PR trellis can be described as a "finite state transition diagram" that "includes states defined based on values of a non-return to zero coding of states."

3. Claims 1, 4, 6-9 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by the published article "Performance Comparison of Selected DC-Free Codes for PR1-Equalized Magnetic Recording Channels" written by Zafer (hereafter "Zafer").

Zafer discloses arrangements for reproducing data that has been encoded by a turbo code encoder followed by an RLL (DC-Free) code encoder and carried by a PR1 channel. Zafer's data reproduction requires a PR-equalizer that provides an "acquiring means." Zafer's Viterbi decoder serves as a "means for decoding the acquired encoded data by using a trellis corresponding to a second finite state transition diagram that is a combination of the first finite state transition diagram and intersymbol interference," where the "first finite state transition diagram" corresponds to the RLL (DC-Free) code trellis, and the "intersymbol interference" corresponds to the trellis of the PR1 channel. As the PR channel transfer function is itself DC-free, the "1"s and "0"s of Zafer's DC-free code are presumably carried in the form of DC-symmetric values (i.e. "NRZ" values, such as +1, -1. Consequently, the RLL/PR trellis can be described as a "finite state transition diagram" that "includes states defined based on values of a non-return to zero coding of states."

Claim Rejections - 35 USC § 103

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada.

Yamada does not mention using a (2,7) RLL code in place of the (1, 7) RLL code. Official Notice is taken that a (2,7) RLL code is a well-known standard type of RLL code. It would have been obvious to a person having ordinary skill in the art at the

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time the invention was made to substitute a (2,7) RLL code in place of Yamada's (1, 7) RLL code. Such a substitution would have been obvious because that a (2,7) RLL code is a well-known standard type of RLL code.

5. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zafer.

Zafer does not mention using a (1, 7) or (2,7) RLL code in place of the DC-Free modulation code. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to substitute a (1, 7) or (2,7) RLL code in place of Fang's (1, 7) DC-Free modulation code. Such a substitution would have been obvious because (1, 7) and (2,7) RLL codes are well-known standard types of modulation code.

Response to Arguments

6. Applicant's arguments filed 20 November 2006 have been fully considered but they are not persuasive.

Applicant essentially argues, incorrectly, that Zafer's and Yamada's binary DC-free modulation codes carried on DC-free media cannot be in a "non-return to zero" format, thereby essentially arguing that DC-free codes are not carried as DC-free signals, which argument of course utterly demolishes the purpose of using DC-free coding in the first place. Applicant's arguments are thus not at all persuasive.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

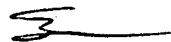
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (571) 272-3814. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Stephen M. Baker
Primary Examiner
Art Unit 2133

smb